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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,446	10/07/2003	Hiroo Takizawa	Q77850	3692

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
ANGEBRANNDT, MARTIN J	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/679,446	**Applicant(s)** TAKIZAWA ET AL.	
	Examiner Martin J. Angebranndt	**Art Unit** 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The examiner notes that the likelihood or obtaining a patent relating to methods using the two photon excitation processes are much better than attempting the gain coverage for the dyes or media containing the dye. (optical recording media commonly have a binder and when these dyes are used in photographic processes, the binder is gelatin (see examples of the application)) The examiner notes that most of the dyes are known to be of use in photographic film. Rejections of the previous office action, not repeated below are withdrawn based upon the arguments, the amendment of the applicant and/or the proper terminal disclaimer.. The applicant states that the bonding is from the position denoted by Y^{11} or Y^{31}. The applicant states that the ketones of formula D-1 through DD-53 when Y^{31} is an oxygen. The examiner agrees with these statements.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either of** Bell '413 or Brooker et al. '351, in view of Soini et al. '738 combined with Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) and/or Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975).

Bell '413 teaches dyes 1-49, particularly dyes 23-49 and examples using them in optical recording media disclosed with respect to the table III in columns 15-16 and examples 32-48 in table VII in column 17-18.

Brooker et al. '351 teach dyes used in examples 1-3. These are embodiments of formula 3.

Soini et al. '738 discloses examples relating to the cyanine dyes in table 1, where oxazole, indole and thiazole cyanine dyes are used as the TPA chromophore. The excitation wavelengths are 578-772 nm and the emission wavelengths are 605-820 nm. See example 8.

Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) teaches the use of various cyanines, merocyanine and squarine dyes in two photon processes.

Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975) teaches the use of various cyanines, xanthene and acridine dyes in two photon processes.

It would have been obvious to one skilled in the art to use the cyanine dyes taught by **either of** Katagiri et al. '128, Bell '413, Brooker et al. '351, Anish '865, Jones '984 **or** Chapman et al. '502 in two photon processes such as those taught by Soini et al. '738 with a reasonable expectation of successfully realizing two photon absorption based upon the broad teachings of dye classes by Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) and/or Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975) including cyanine dyes having two photon absorption.

The applicant's arguments did not address the remaining primary references, so there is not response beyond this. The rejection is maintained. The Soini et al. '738 describes the use of the cyanine dyes in two photon absorption and emission processes.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either of Nakamura et al. '128 or JP 2002-072466, in view of Devoe et al. WO 01/96917, Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) and Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975).

Nakamura et al. '128 describes a photosensitive composition where an IR absorber (IR-1 or IR 3 in table 1) is part of a composition with an onium salt and acrylate monomers to form a printing plate . [0146-0147]. The use of this composition as a photoresist or the like is disclosed. [0002].

JP 2002-072466 teaches composition where dye SSS-2 is used to cause photopolymerization. (table 1,0117,0114], to form an image in a printing plate using free radical based polymerization.. The use of triazines in the compositions is disclosed. [0071-0074]. The use of this composition as a photoresist or the like is disclosed. [0001].

Devoe et al. WO 01/96917 teaches the use of two photon processes to form three dimensional structures, such as optical elements (3/15-20). The exciting light is not attenuated by the composition outside the focal volume, which allows the formation of articles within a polymerizable composition and the formation of features smaller than the diffraction limit (3/21-4/9). The desirability of compounds able to sensitize 2-methyl-4,6-bis(chloromethyl)s-triazine or onium salts is disclosed. (27/9-14, 29/25-30/17).

It would have been obvious to one skilled in the art to modify the process of the cited examples of Nakamura et al. '128 or JP 2002-072466 by using this composition with a two photon exposure process as disclosed by Devoe et al. WO 01/96917 to form smaller features (sub-diffraction limit) and/or three dimensional structures with a reasonable expectation of successfully realizing two photon absorption based upon the broad teachings of dye classes by Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) and/or Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975) including cyanine dyes having two photon absorption.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either of either Urano et al. '356 or JP 09-134009, in view of Marder et al. '683, Devoe et al. WO 01/96917, Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) and Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975).

Urano et al. '356 (example 1, where A is barbituric acid) exemplifies a photopolymerizable composition which use cyanine dyes to sensitize the compositions (27/49-64).

JP 09-134009 [0070, IR-22] describes photopolymerizable compositions which use cyanine dyes to sensitize the compositions to IR. Example 9 in table 2 [0118] uses this dye.

Marder et al. WO 02/079691 teach the use of two photon recording compositions to form printing plates. ~~[0171]~~ Page 13. Ws 11/1/06

It would have been obvious to one skilled in the art to modify the process of the cited examples of Nakamura et al. '128 or JP 2002-072466 by using this composition with a two photon exposure process as disclosed by Devoe et al. WO 01/96917 to form smaller features (sub-diffraction limit) and/or three dimensional structures with a reasonable expectation of successfully realizing two photon absorption based upon the broad teachings of dye classes by Feldner et al., "Non-linear optical properties of specific polymethines: influence of substitutents and chain length", MCLC S&T Sec. B, Nonlinear Optics vol. 26(1-3) pp. 99-106 (2000) and/or Foucault et al., "Two photon absorption in organic dyes relation with the symmetry of levels", Optics Comm. Vol. 15(3) pp. 412-415 (1975) including cyanine dyes having two photon absorption and based upon the teaching of the use of two photon absorbing compositions in forming printing plates by Marder et al. WO 02/079691.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Belfield et al., "Multiphoton absorbing oraginc materials for microfabrication ...", J. Phys. Org. Chem., Vol. 13 pp. 837-849 (2000) and Diamond et al. "Tow phtono holography in a 3-D photopolymer host-guest matrix", Opt. Express Vol. 6(3) pp. 64-68 (01/2000)

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Martin J Angebranndt
Primary Examiner
Art Unit 1756

11/1/06
~~02/22/2006~~